Form C-104
Rev. 10/07

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

Date May 19, 2009

Contract ID 081219-502
Job No. J5P0954/J5P0955
County Callaway Route 54
Original Bid Cost $4,386,537.39
Contractor APAC-Missouri, Inc.
By Josh Davis
Designed By MODOT
Phone 573-449-0886
VECP # 09-39
VECP ☒ or VECP/PDU ☐

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

On Job J5P0954 and J5P0955, APAC proposes lowering the depth of the inside shoulder from 3 ¾ inches at EOP down to 2 inches EOS to 3 ¾ inches at EOP down to 1 inch at EOS on the overlay portion of both projects. This would allow both inside and outside shoulders to have the same depth of asphalt. This would not only save on asphalt quantity, but eliminate the need for MoDOT Maintenance to have to place material as edge treatment as shown on the plans, and or any future erosion of such material which would cause a shoulder drop off. Also, APAC proposes decreasing the width of the inside shoulder from 6 feet to 4 feet. Most of the inside shoulder throughout this project loses its structural integrity beyond 4 feet from the edge of pavement. There are numerous locations where grass and other vegetation along with loose gravel are all that there is beyond 4 feet. In addition, tack will also be a savings to MoDOT since it will no longer be needed on the most inside 2 feet on the inside shoulder. The total savings of asphalt and tack would be as follows:

1) Item 30 would save 43.01 tons @ $52.41 per ton for a total of $2,254.18 in savings.
2) Item 300 would save 1809.86 tons @ $53.38 per ton for a total of $96,610.50 in savings.
3) Item 780 would save 1177.20 tons @ $51.70 per ton for a total of $60,861.24 in savings.
4) Items 60, 330, and 810 will reduce 15,291 SY at 0.05 Gals/SY = 764.5 Gals = $1,574.96 in savings.

The total reduction in construction costs for all three item listed above would be $161,300.88

2. Estimate of reduction in construction costs. $161,300.88
3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

_____
(date)

5. **Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.**

_____ (date) _____ (effect)

6. **Dates of any previous or concurrent submission of the same proposal.**

_____ (date and/or dates)

Additional Comments:

***** Portion Below This Line To Be Filled Out by MoDOT *****

Comments: Attached

Charles Sullivan — Submitted By Resident Engineer — 5-27-09 — Date

Comments: After consider all comments and information including alternative approaches to make this VE Concept work, it's determine that the shoulder slope will exceed 6.9%, which is the maximum allowed.

☐ **Approval Recommended**

☒ **Rejection Recommended**

Roger Schwartze — District Engineer — 6/3/09 — Date

Comments:

☐ **Approval**

☒ **Rejection**

David D. Gaines — State Construction and Materials Engineer — 6-8-09 — Date

BAW

Distribution: Resident Engineer, Project Manager, District Operations Engineer, State Construction and Materials Engineer
*Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102

Value Engineering Change Proposal

Contract ID: 081219-502
Job No.: J5P0954 & J5P0955
Route 54, Callaway County

Contractor: APAC-Missouri, Inc.

Resident Engineer Response:

On May 26, 2009 personnel from MoDOT's Columbia Project Office and district design office reviewed APAC-Missouri, Inc.'s VE submittal. Here are their findings and comments.

To put the discussion into perspective design personnel had worked up a spreadsheet, which was used during the design of the overlay, that graphically depicts the final shoulder cross-slope after the addition of the BP-1 overlay.

The spreadsheet compared three different overlay scenarios. Each scenario looked at both inside and outside shoulders. The overlay scenarios compared were 1) 3 ¾ inch EOP to 1 inch EOS; 2) 3 ¾ inch EOP to 1 ½ inch EOS and 3) 3 ¾ inch EOP to 2 inch EOS. The main objective here was to determine a final cross slope of the shoulder after placement of the overlay.

Discussions between team members brought out questions and answers that were covered during the final field check and design phase of the project and will be used to answer APAC-Missouri, Inc.'s proposal. It was noted that a practical design approach was used so as to not compromise the integrity of the existing shoulders.

Noted discussions included a design decision to maintain the shoulder final cross-slope to less than six percent and as close to five percent as possible while maintaining the shoulder stability and also to maintain median shoulder width at six feet and outside shoulder width ten feet. Even though the edge of each shoulder are a bit raveled, shoulder stability can still be maintained while keeping them at six and ten feet. Also the team agrees that edge treatment is not required for edge of shoulder drop off of two inches or less. Thus, maintenance personnel will be able to maintain the shoulders without additional cost after the project is completed.

Thus, the final design of the 3 ¾ inch EOP to 2 inch EOS for a six foot wide median shoulder and a 3 ¾ inch EOP to 1 inch EOS for a ten foot wide outside shoulder.

In summary, through team discussion and practical design, a review of the Value Engineering Change Proposal was discussed prior to design and not deemed acceptable via practical design.

Charles Sullivan
5-27-09

Patricia L Lemongelli/D5/MODOT
05/29/2009 11:57 AM

To Charles A Sullivan/D5/MODOT@MODOT
cc
bcc
Subject Fw: Columbia Project office response to VE Proposal for J5P0954 and J5P0955

Talked with Kenny (he was at the district for a meeting). He said the 6.00% max came from the green book.

So with that in mind and even considering the plan taper (3 3/4" to 2") on a 4' shoulder in lieu of 6', the slopes exceed 6.00%.

I'm satisfied to reject the proposal, which I will do so and send it on.

Patty
----- Forwarded by Patricia L Lemongelli/D5/MODOT on 05/29/2009 11:53 AM -----

Patricia L Lemongelli/D5/MODOT
05/28/2009 04:16 PM

To Charles A Sullivan/D5/MODOT
cc
Subject Re: Columbia Project office response to VE Proposal for J5P0954 and J5P0955

Chuck,
I looked at this a little futher in hopes of trying to find something that would work so that we could "counter" their proposal as opposed to flat out rejecting it. I looked at possibly tapering from 3 3/4" to 1 1/2" in lieu of 1". On both jobs, with the exception of 1.4 mile section, the shoulder slope would still exceed 6.0%. The 1.4 mile section is not worth pursuing. So I came up with nothing.

James Beattie has a voice mail into Kenny Voss to ask him where the 6.0% max slope came from. And James informed me that EPG states that shoulders on rural major routes is only 4'. Was maintenance in on conversations to keep the 6' inside shoulder?

Haven't seen the hard copy come through the mail yet.

I'll be around on Friday.
Patty
Charles A Sullivan/D5/MODOT

Charles A Sullivan/D5/MODOT
05/27/2009 11:22 AM

To Patricia L Lemongelli/D5/MODOT@MODOT
cc
Subject Columbia Project office response to VE Proposal for J5P0954 and J5P0955

Patty,

Here is the RE response to the VE Proposal.
Hard copy in the mail.

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- X Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

The main subject of this VE is to reduce the depth of the Edge of Shoulder from 2" to 1". By doing so this would increase the slope of shoulder to greater than 6% which is not allowed. Therefore this VE proposal is rejected.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

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